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ABSTRACT

Information relative to what constitutes quality vocational programs is necessary as a basis for program evaluation. Moss (1968) has defined program evaluation as the process of attributing differences between actual and comparative outcomes to program characteristics under different conditions of student characteristics and intervening influences, and judging the value of program characteristics. The definition has two important qualities--evaluation must be comparative and differences must be attributable to program characteristics or interaction of programs and student characteristics. Few reports have directly addressed the concept of "quality" or what constitutes quality in vocational education. Quality, however, must be assured as quantity of vocational education has increased. Three factors are suggested as determining quality: scope, management by objective, and bench marks. Common criteria used in judging quality of the vocational education process are a stated set of objectives, quality of student commitment and motivation, quality of faculty, facilities and equipment, quality of program or curriculum, and feedback mechanisms for evaluation. Process or product criteria must be chosen for program evaluation. A viable measure would be the degree the program increases graduate employability, produces measurable benefits of achievement, and improves retention rates. Outcomes other than employment should be included as nontraditional criteria for program evaluation. (YLB)

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TOWARDS QUALITY VOCATIONAL EDUCATION PROGRAMS: IMPLICATIONS FOR EVALUATION APPROACHES AND CRITERIA

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TOWARDS QUALITY VOCATIONAL EDUCATION PROGRAMS: IMPLICATIONS FOR PROGRAM EVALUATION

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Concern about the quality of programs in education transcends vocational education and the field of professional education. The concept of "quality" is an illusive and ill-defined concept. In the way the term seems to be commonly used "quality" is that which is in the eye of the beholder.

Considerations of quality involve considerations about an end product or resulting set of conditions, a set of specified characteristics, are standards upon which judgements can be based. In some cases, the matter of quality is a relatively simple one. However, in vocational education we have no widely agreed upon specifications and we have no clearly defined uniform standards.

It appears frequently that the widespread differences of view about quality in vocational education programs are differences about the process used to measure and/or document such quality.

A number of evaluative efforts have been completed that have attempted to document the effectiveness of vocational education programs. Often this effectiveness is determined by criterion such as the percentage of students placed in the occupation for which they were trained, occupational adeptness, salaries of employees, etc.

Even without the authorization to evaluate and/or assess vocational education programs as authorized in PL 94-482 (section 523 (b) of PL 94-482), a basic rationale of this paper is that program evaluation for quality and effectiveness is important because it provides evidence about the relative merits programs, thus enabling educators to make more realistic decisions about program operations, development and/or modifications, The key, of course,

is improved rationality of decision making in relation to some quality criterion.

With regards to criteria for quality assessment, this paper will address and note the vaviations, sometimes very great variations, in programs in different states. For more than fifty years, federal statutes have imposed federal policy and regulations, and a considerable amount of uniformity does exist. But differences in population, economic patterns and educational development within the states have had counteracting effects leading to substantial differences in their vocational education programs; thusly, leading one to conclude that indeed "quality vocational education programs" is in the eye of the beholder.

The purpose of this paper is to present information relative to what constitutes quality vocational programs as a basis for program evaluation. Further this paper will address the importance of program evaluation, criteria for evaluating quality vocational education programs, the need for non-traditional criteria and the need for new instrumentation and evaluative strategies in vocational education.

THE IMPORTANCE OF PROGRAM EVALUATION: DEFINITION, OBJECTIVES AND ROLE

The term evaluation has its roots in the words evaluer and valere. The French word evaluer means to estimate, and the Latin word valere means to be strong. From valere comes the word value, meaning the worth or quality of something. Evaluer implies a process whereas valere implies a product. Thus, evaluation is thought of as a process or product of evaluating.

This background helps to explain why definitions of evaluation include concepts of process, estimation and value. To illustrate the use of these concepts a few definitions have been gleaned from educational literature and are presented here:

> Evaluation is the process of determining the extent changes in knowledges, interests, understandings, attitudes and skills were accomplished.

Evaluation is the process of assessing the degree to which one is achieving his objectives.

Evaluation is a process of determining the extent to which the educational objectives of a program have been reached at the end of a particular educational activity.

Evaluation is the systematic attempt to gather evidence regarding changes in student behavior that accompany educational experiences.

Evaluation is the process of ascertaining or judging the value or amount of something by careful appraisal.

These definitions of evaluation consider evaluation a process (or attempt) to determine (or ascertain, assess, or judge) the degree (or extent, value or amount) of progress (or change, effectiveness or achievement) toward predetermined objectives (or behaviors or something). Evaluation, then, is an active process of trying to find answers to specific question.

It is apparent that program evaluation should achieve three major objectives: First, to determine whether program objectives have been reached. Second, to provide data for planning and/or a rational basis for decision making. Third, to determine whether programs meet criteria for reimbursement. Ideally, priorities ought to be in that order. Initially a given situation may require that the latter be the first priority.

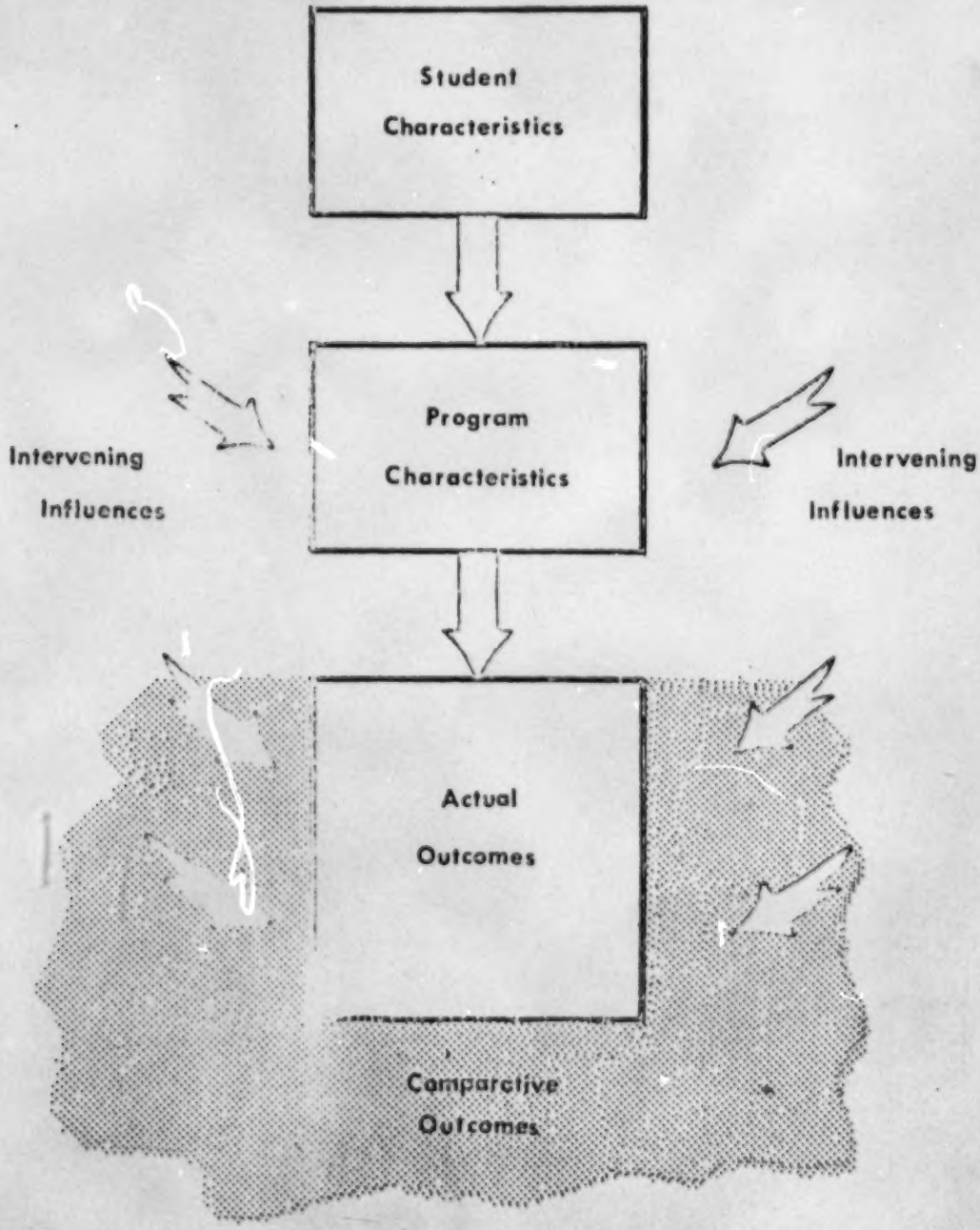
While all vocational, technical and practical arts educators have some concept of program evaluation, the literature indicates that the meanings held are quite varied. Figure 1 entitled "Major Components of the Evaluative System", is intended to introduce the concept as it is used in this paper.

The model, which was proposed by Moss (1967), starts with students, each of whom differ with respect to characteristics which affect their ability to learn at the time they enter the program to be evaluated. Students differ, for example in relevant aptitudes, achievement, motivation, health, etc. which alone and in interactions, create variation in "readiness" for the program.

The program the students enter has characteristics which provide them with educational experiences. It is these characteristics that are to be evaluated. Students are exposed to selected content, which has been organized in specific ways, which is presented in certain manners, and to which the students are encouraged to respond in particular ways, all under the guidance or management of an instructor with certain characteristics. These

Figure 1

MAJOR COMPONENTS OF THE EVALUATIVE SYSTEM



"transactions" (Stake, 1967) take place under particular physical and psychosocial environmental conditions.

In addition to the influences of the specific program to be evaluated, students are inevitably affected by other experiences and conditions in the environment, which occur outside of the program, but whose effects might be mistaken for outcomes of the program. These experiences can take place at any time after the student enters the program, and before the program outcomes are measured. For example, students might take a variety of other courses which differentially alter their ability to learn the content of the program to be evaluated; increases in dependents or extra-curricula experience on a part-time summer or after-school job could change motivation; economic conditions could alter the availability of particular kinds of jobs after graduation; military service could result in greatly enhanced occupational skills, etc.

The interaction of student characteristics, program characteristics, and other intervening influences produce actual outcomes. These outcomes consist of student or ex-student behaviors, and the effect of those behaviors on the school, the community, the economy, society, etc., and other direct consequences of the program for teachers, administrative patterns, other students, etc.

Finally, the evaluative system contains one or more sets of comparative outcomes. These outcomes are anticipated, expected, hoped-for results of the program, or they may be the actual outcomes of a different program, or the outcomes of the same program at different points in time. In all cases, they provide the comparative standard by which the relative merits of a given program will be judged.

The components of the evaluative system can be utilized to create a more formal definition of program evaluation, as follows:

> Program evaluation is the process of attributing differences between actual and comparative outcomes to program characteristics, under different conditions of student characteristics and other intervening influences, and making a judgment about the value of the program characteristics. The process is conducted for the purpose of making more rational decisions about programs (Moss, 1968)

Note that the definition has two important qualities. First, evaluation must be comparative. To report actual outcomes provides only a description

of what happened. Evaluation requires making a judgement, which in turn necessitates comparing outcomes with some other set of expected or actual outcomes.

Second, evaluation requires that differences in the outcomes compared must be attributable to program characteristics or the interaction of program and student characteristics. Comparing outcomes which do not reflect actual differences in programs, but which are due, for example, to differences in students, or to other relevant influences, would be completely misleading.

CHARACTERISTICS OF QUALITY PROGRAMS IN VOCATIONAL EDUCATION: A BRIEF SYNOPSIS

A report of the National Planning Association (1972) suggests that successful or quality vocational education programs must take into account both the educational and the economic dimensions. Another way to look at quality vocational education programs is by functions -- service to a technically oriented society and service to individuals in society, (OE,1972).

Further, this same report included a three-part checklist -- program, economy, and student -- to measure program characteristics of quality vocational education programs. The report however did not indicate how these quality characteristics were derived.

Dagenais (1974) discussed the identification of the most successful vocational education programs in California community colleges using the Delphi method. The characteristics of the successful programs were grouped in the areas of student, curriculum, instruction, administration, and advisory committee. This report pointed out the reliability of peer opinion in rating the various criteria.

A group of anonymous panel members was utilized with a three-phase polling technique. First, panel members were asked to identify the five most successful programs, using their own judgment about the definition of successful.

The second round consisted of asking the panel members to review a composite list of successful programs and select three most successful programs instead of five.

In the third round the reasons for identification of successful programs were rated by panel members in terms of their relative importance to program

success. These reasons were combined with opinions obtained elsewhere and then incorporated into a questionnaire used to collect data on selected programs for the empirical part of the study.

A statistical discussion pertaining to reliability of the Delphi panel was included in the report. This seems to have been the major focus of the study in relation to quality characteristics observed.

Successful programs that were indentified included:

1. Large programs.
2. Programs that enrolled females in greater proportion than males.
3. Programs that were regulated through State licensing procedures.
4. Programs that screened applicants.
5. Programs that did not offer remedial courses.

The report further included a statistical discussion relating to the establishment of these criteria.

On an empirical level the study identified the multivariate nature of success in vocational education programs. Twenty items with potential for predicting program success were identified. Of particular interest is the fact that the 20 variables distribute themselves among five major topical groups: student, curriculum, faculty, management, and trusteeship. A study by Wallace (1975) which deals with the search for quality in vocational education programs provides a list of components for "quality" vocational-technical programs. This list of quality components is used in a Self-Checklist evaluation form devised as an alternative to the State on-site instrument. The report is not conclusive as to the superiority of this instrument.

A preponderance of studies and/or documents further noted that program evaluation which attempts to assess the "quality" of the program is dependent upon comparing the actual observed outcome of a program with some standard. Three performance standards frequently referred to are: (1) arbitrarily fixed standards (2) standards based on norm groups and (3) comparative standards.

In summary, there are but a few reports that directly address the concept of "quality" or what constitutes quality in vocational education programs.

TOWARDS QUALITY PROGRAMS

Quality must be assured as quantity of vocational education has increased. Many new individuals and institutions are involved in the decision and operational processes of vocational education. Each must have essential criteria available for guidance.

What are the factors which determine quality in vocational education programs? Among these factors are:

(a) Scope is a factor. Quality in vocational and technical education is not an attribute that resides solely in the individual program; it relates to the scope of the program available to youth. Efforts to develop vocational and technical programs within an area or school division must be concerned with a scope of available offerings, not only with the facilities, equipment, and instructional staff and curriculum within one program.

Finally, a vocational education program cannot be considered quality unless it makes available access and opportunity in keeping with different abilities, interests and needs of all youth and adults to be served; this is especially true since the 1963 Act, the 1968 Amendments and PL 94-482 have combined to put greater emphasis on meeting the needs of special populations heretofore not adequately met, (ethnic minorities, the handicapped, disadvantaged, migrant laborers, the incarcerated, women, etc.).

(b) Management by Objective. I also identify management by objective as a basis for quality. Perhaps our objectives upon which we measure our effectiveness have not been that clear. Then, again, perhaps our objectives were as clear or clearer than in other fields of education.

(c) Bench Marks. In many states, including Virginia, legislation has been passed, referred to as "Standards of Quality" in the Commonwealth, to provide an adequate program of vocational education for youth enrolled in the public schools. The legislation is quite specific and provides evaluators a good basis for assessing quality programs.

Specifically, "what are the 'quality dimensions' that separate the good from the mediocre vocational programs?"

There are common criteria utilized in making judgments about the quality of the process of vocational education. The first dimension or criterion is a stated set of objectives which actually give direction to the vocational education program itself. Any set of objectives which does not limit or

preclude certain acivities is operationally meaningless and useless.

A second dimension is the quality of students enrolled in the vocational and technical programs relative to their commitment and motivation. It has been my experience that vocational education is relevant education. Properly organized and properly taught, it can serve not only as a means to prepare youth for employment but also as a method of education for a significant number of youth for whom subject-centered academic education has little meaning.

The occupational goals of youth encourage commitment to a vocational education program. Youth can be motivated to achieve in that program if it provides for reasonable choice and if the quality of the program earns their respect. You will note that judgments made about the quality of students enrolled in vocational programs can reflect considerations about both end product and process.

A third dimension of a quality vocational education program is the quality of the faculty. Considerations of faculty characteristics also are reflective of views about both end product and process. Some of the faculty characteristics which I feel are basic are: intelligence, integrity, dedication to the field of vocational, real world orientation, teaching and occupational competencies.

A fourth dimension would be facilities and equipment. It is perfectly obvious that without access or a growth of physical facilities and equipment, we cannot possibly implement the quality/quantity concepts important in vocational and technical education. Further, this could contribute to or hinder the development of the skills, technical knowledge, work habits, and attitudes essential to entrance into employment.

A fifth dimension is the quality of the vocational and technical education program (or curriculum) itself. An assessment of this component should reflect a curriculum that (1) meets individual needs, (2) takes into consideration the nature of the society which the instructional program will be provided and (3) includes an analysis of the occupational area to be taught -- analysis of the skills, technical knowledge and other competencies necessary for success in an occupation.

A sixth dimension of a quality program is feedback mechanisms which are used for evaluative purposes. Systematic use of feedback continues to

focus attention on objectives and provides a basis for correction of ineffective or inefficient means.

I wish I could feel confident that these six dimensions constitute the totality of quality considerations. However, I believe that the existence of qualitative levels in all six dimensions will not provide necessarily a "quality" program. One additional essential ingredient is the "climate" of a program. Climate seems to be a gestalt, a dimension resulting from the interactions among the other dimensions. Without the gestalt, the other dimensions seem to lack both potency and effectiveness. Despit these observations, we are still left with the basic questions about quality, "What is it?" "How do you know when you see it?".

Possessed with a knowledge of quality dimensions, the essential question now must be "What should be the indicators or outcomes of a quality vocational education program?" Or "What should be the evaluative criteria for quality vocational education programs?"

CRITERIA FOR EVALUATING QUALITY VOCATIONAL EDUCATION PROGRAMS

Among the first decisions to be made is whether to use process or product criteria.

Process criteria are drawn from the inputs and transactions that comprise the vocational curriculum. They are largely reflective of how the vocational education program functions, including the various environmental elements that presumably determine the degree of its success (ie., such factors as the curriculum and how its developed, the use of advisory mechanisms, the equipment used for instructional purposes, the quality of the faculty, the process of selecting students, and the manner in which placements are made to name a few). The premise is that by evaluating program characteristics, conclusions regarding the viability of the training can be inferred.

Product criteria, on the other hand, consist of the outcomes of instruction -- such as student behaviors and what the training does for him. They reflect program objectives and program outcomes -- both qualitatively and quantitatively. According to Moss (1971), "product criteria are very much the proof of curriculum pudding". Thusly, product criteria ought to reflect how well the program fullfills its objectives: the extent to which students

persist, how they find jobs appropriate to their training and how they perform in these jobs.

What should be the indicators or criteria of success of vocational programs?

Without a doubt, the most common (and time tested) criteria for vocational evaluations are:

(1) Program completion rates
(2) Student competence
(3) Cost-efficiency of the program
(4) Placement rate of students
(5) Employer-employee satisfaction

In addition, one finds from a sursery glance of the literature, other criteria including:

(1) Programs relationship to job market profile
(2) Program success in meeting vocational aspiration of clientele
(3) Program success in student performance
(4) Program level of community support
(5) Degree of student satisfaction
(6) Number of students who have successfully maintained a job or have moved to better employment
(7) number of students involved in further training

I believe very strongly that evaluation criteria should begin with the criteria identified in or related to the mission established by the local education agency. Evaluative criteria should be structured to permit local individuality of programs rather than applying only a standard instrument as a measuring devise.

It seems evident to me that a viable measure will be the degree the program increases the employability of graduates, produce measurable benefits of achievement, improves retention rates (ie. decreasing drop out rates and its success in meeting the needs of students from special populations).

NON-TRADITIONAL OUTCOMES IN MEASURING THE EFFECTIVENESS OF VOCATIONAL EDUCATION

If the question was asked, "Does vocational education do anything for students other than train them for employment?" Most people would probably agree that it does, but the State and Federal Vocational Education Agencies seem either unsure, confused of indifferent. If true, and this writer concures, vocational education should recognize the fact -- and consider these different outcomes from participation in its programs as new dimensions or

non-traditional criteria for program evaluation. To a considerable extent, Congress and the United States Office of Education have locked vocational education into a single-product criterion outcome concept, but vocational educators and administrators have let it happen.

Where is the research to really find out? Where is the documentation of vocational teachers who say their students learn self-confidence, communication skills, work attitudes, and how to get along with employers and other employees? Where are the follow-up studies that list other benefits than job placement from vocational education programs? Many students do not go into the fields for which they were trained, or even into related fields. Did they waste their time taking vocational education? Were the vocational education funds used to pay for their training wasted?

This is one of the most consistently ignored gaps in public knowledge about vocational education. It is not the fault of just vocational educators. All educators, and especially educational researchers, should be probing the possibilities of improving learning for all students through vocational education. Many individual vocational educators have been convinced for years that employment-related training programs in the shcools improve communication and mathematic basic skills. This could be conclusively demonstrated or disproved through longitudinal research involving pre-tests and post-tests of matched groups of students in vocational education and in non-vocational programs. With the Nation's growing concern over basic skills, why is this kind of research being neglected?

The neglect is primarily the responsibilty of vocational education. Too much emphasis has been placed solely on job placement. This is not what education is all about, and vocational educators know it. In practice the great majority of them are engaged just as much in preparing students for successful lives as other educators are. It is in what they say they are doing, and the image they have projected of job training as something isolated from the rest of education, that they do a disservice to themselves and their profession. I believe this to be especially the case with reference to assessing the efficancy of vocational education for students who are disadvantaged, handicapped, or simply those who come from culturally different backgrounds.

IMPROVING EVALUATION TECHNIQUES IN VOCATIONAL EDUCATION

This paper connot be concluded without some observations on the approaches currently being used to evaluate vocational education programs., Brown(1971); Denton (1973); Medsker (1970); Felstehausen (1973); Pautler (1974); Boelkner (1974); Moss (1968) and others have generally supported the following approaches to the evaluation of occupational education programs:

(1) Formative evaluation
(2) Summative evaluation
(3) Follow-ups
(4) Site team evaluations
(5) Experiments
(6) Interrupted time series design
(7) Cost-benefit analysis
(8) Regression analysis

No observations will be made as to the relative merits of these approaches; however, it seems quite clear to this writer that possibly just as important as what technique to use is the timeliness of the application of the technique. In other words, even after the evaluator had chosen appropriate product criteria and valid performance indices to measure them, and after he has decided how to weight each index in order to attain an overall measure of curriculum effectiveness consistent with some rationale for vocational education, there still remains the problem of determining when to measure the outcomes. One possible choice is to measure the outcomes, such as student achievement, after the student has completed the curriculum but is still in school. The alternative, of course, is to measure outcomes after the students have been out of school for some period of time. The validity of the outcome measures, in terms of the behavioral goals of vocational education, can be better assured by this approach. Either approach poses some serious pros and cons to consider relative to the "time" for getting the best evidence that a vocational education program is effective.

In addition to evaluation timeliness, if evaluators are to determine whether vocational education really makes a difference in terms of certain consequences of behavior and/or experiences, five steps must be adhered to:

(1) The outcomes of vocational education must be specified
(2) Means of measuring the identified outcomes must be established
(3) Baseline comparisons must be developed
(4) Data must be collected, preferably under experimental conditions (if possible)
(5) They must be appropriately analyzed

Concluding Comments

This writer would like to conclude this paper on a very positive note. Within the past few years, possibly due to increased emphasis on accountability and evaluation as mandated by federal legislation, the technical improvements in evaluation have been great. To be sure, we still must deal with our shortcomings relative to an operational definition of "quality" vocational programs, deciding on what should really be the most consistent indices of a quality vocational education program, and deciding on what other dimensions constitute the totality of a quality vocational education program.

Consequently, the final judgment must be negative with respect to most of the evaluation studies in existence. But the mood is optimistic as evidenced by the increasing level of methodological sophistication and improvements in professional vocational and technical education graduate programs.

Although it is clear that the evaluation of program adequacy is an essential part of the assessment of a state program, it also is true that the value and effectiveness of a program can be determined only with respect to outcomes. Thus, a program which is effective for objective X may be ineffective for objective Y. A facility, a teaching staff, or a budget is appropriate, adequate, or effective only with respect to some goal. Thus, evaluation of educational program effectiveness is <u>meaningful</u> only after it is known whether educational programs served their intended purposes.

This point is being emphasized strongly in the political and legislative arenas. Not only is federal legislation written to emphasize educational <u>outcomes</u> for specified groups of students, but education now finds itself having to compete at all governmental levels with other agencies and institutions for limited human and economic resources. Decisions by policy-making

bodies regarding resource allocations are being made with increasing frequency of evidence of program effectiveness, relevance to social and economic conditions, and the degree to which programs reflect community, state and federal interests and concerns. In such an environment, evaluation methodologies which have been commonly employed in vocational education fail to provide the evidence required by policy-making bodies and must be replaced by a more effective evaluation methodology if a proper case is to be made for support.

Despite these observations, we are still left with the basic question about a quality vocational education program, "What is it?".

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